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Comparative Analysis of Isolated Periacetabular Osteotomy versus Concomitant Hip Arthroscopy for Developmental Dysplasia of the Hip: A Comprehensive Review and Retrospective Cohort Study

Hannah R. Smith, Albert Yim, Andrea Landers, Andrew Gray, Andrea Herzka MD, Thomas Huff MD, Ryland Kagan MD

Department of Orthopedics and Rehabilitation, Oregon Health & Science University, 3181 SW Sam Jackson Park Rd, Portland, OR 97239, USA.
OHSU

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Abstract

Introduction

Developmental dysplasia of the hip (DDH) is a condition in which the hip joint is improperly formed, leading to pain, instability, and early arthritis. Surgical interventions such as periacetabular osteotomy (PAO) and total hip arthroscopy (THA) are employed to address symptomatic DDH, aiming to improve hip function and mitigate long-term complications. However, the optimal surgical approach for treating DDH remains a subject of debate, particularly regarding the comparative efficacy and outcomes between isolated PAO and concomitant THA.

Methods

A comprehensive literature review was conducted to assess the current evidence regarding the treatment of DDH with isolated PAO versus concomitant THA. Studies reporting on surgical outcomes, patient-reported outcomes, and radiographic findings were included. A retrospective cohort study was then conducted involving patients who underwent PAO for treatment of DDH at OHSU (Oregon Health & Science University) beginning January 1, 2018. 68 patients met inclusion criteria and were evaluated for subsequent hip arthroscopy, preoperative and postoperative LCEA (Lateral Central Edge Angle) and Tonnis angle.

Results

The literature search identified a limited number of studies directly comparing isolated PAO with concomitant THA for the treatment of DDH. While both procedures have demonstrated efficacy in improving hip function and alleviating symptoms, there is a paucity of evidence to support when one approach may be superior to the other. Of the 68 OHSU patients that underwent isolated PAO for treatment of DDH, 3 required a follow-up hip arthroscopy (4.4%). Average preoperative LCEA was 15.127 and postoperative LCEA was 28.784. Preoperative average Tonnis Angle was 15.915 and postoperative 1.549.

Conclusion

The initial findings suggest that isolated PAO may be an effective treatment for DDH, but further prospective studies with long-term follow-up are needed to elucidate the comparative effectiveness and durability. Additional exploration of anatomical considerations may provide further guidance regarding which surgical approach is best suited.